

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A process of forming an in-mold coated thermoplastic workpiece comprising the steps of:

(a) injecting, using an injection high pressure, into a mold comprising a fixed mold half and a movable mold half, and which is maintained in a closed position under a ~~constant~~ clamping pressure, greater than said injection high pressure, a thermoplastic material which is at a temperature above its melt temperature, to fill at least about 75 percent of said mold;

(b) Continuing, using an injection pack pressure which is less than said injection high pressure, to inject said thermoplastic material which is at or above its melt temperature into said mold which is maintained in a closed position under said clamping pressure until said mold is filled to at least 99 percent of its capacity[.];

(c) maintaining said thermoplastic material, as it cools, under a hold pressure, which is less than said injection pack pressure, in said closed mold, which is maintained under said ~~constant~~ clamping pressure, to form a workpiece[.];

(d) injecting into said closed mold while ~~it is~~ maintained under said ~~constant~~ clamping pressure and immediately after the surface temperature of said thermoplastic forming said workpiece falls below ~~[[its]]~~ a melt temperature, a predetermined amount of in-mold coating material to coat at least a portion of the surfaces of said workpiece[.];
and

(e) releasing said clamping pressure, opening said mold and removing said in-mold coated workpiece after said in-mold coating material has at least partially cured.

2. (Original) The process of claim 1, wherein the thermoplastic is chosen from the group consisting of polyester, polystyrene, PBT copolymer, polypropylene,

TPU's, ABS, PVC, polycarbonates, PP/PS alloys, polyethylene, nylon, polyacetal, SAN, acrylics, PC alloys and PP alloys.

3. (Original) The process of claim 1, wherein the in-mold coating material is a thermosetting composition capable of being cured by free radical initiation at a temperature below the melt temperature of said thermoplastic.

4. (Original) The process of claim 2, wherein the in-mold coating material is a thermosetting composition capable of being cured by free radical initiation at a temperature below the melt temperature of the thermoplastic.

5. (Canceled).

6. (Canceled).

7. (Canceled).

8. (Currently Amended) [[A]] The process according to Claim 2, wherein said in-mold coating material is selected from the group consisting of polyurethanes, epoxy-amines, and acrylics.

9. (Currently Amended) [[A]] The process according to Claim 4, wherein said in-mold coating material comprises an epoxy resin further comprising an epoxy-based oligomer having at least two acrylate groups and at least one copolymerizable ethylenically unsaturated monomer and at least one copolymerizable monoethylenically unsaturated compounds having a -CO- group and a -NH₂-, -NH-, or -OH- group.

10. (Currently Amended) [[A]] The process according to Claim 4, wherein said in-mold coating material comprises at least one acrylic oligomer from a saturated aliphatic polyester urethane intermediate, a saturated (cyclo) aliphatic (meth) acrylate,

one or more hydroxy alkyl (meth)acrylates, a polyacrylate ester of an alkylene polyol, one or more vinyl substituted aromatics, and an initiator capable of generating free radicals in said coating composition.

11. (Currently Amended) [[A]] The process according to Claim 10, wherein said saturated (cyclo) aliphatic (meth) acrylate is present in said in-mold coating material in an amount of from about 20 to about 100 parts by weight per 100 total parts by weight of said polyester urethane acrylate.

12. (Currently Amended) [[A]] The process according to Claim 10, wherein said saturated (cyclo) aliphatic (meth) acrylate is present in said in-mold coating material in an amount of from about 50 to about 80 parts by weight per 100 total parts by weight of said polyester urethane acrylate.

13. (Currently Amended) [[A]] The process according to Claim 10, wherein said hydroxy alkyl (meth) acrylates are present in said in-mold coating material in an amount of from about 2 to about 20 parts by weight per 100 parts by weight of said polyester urethane acrylate.

14. (Currently Amended) [[A]] The process according to Claim 10, wherein said hydroxy alkyl (meth) acrylates are present in said in-mold coating material in an amount of from about 8 to about 12 parts by weight per 100 parts by weight of said polyester urethane acrylate.

15. (Currently Amended) [[A]] The process according to Claim 10, wherein said vinyl substituted aromatics are present in said in-mold coating material in an amount of from about 10 to about 70 parts by weight per 100 parts by weight of said polyester urethane acrylate.

16. (Currently Amended) [[A]] The process according to Claim 10, wherein said polyacrylate ester of an alkylene polyol is present in said in-mold coating material

in an amount of from about 10 to about 40 parts by weight for per 100 parts by weight of said polyester urethane acrylate.

17. (Currently Amended) [[A]] The process according to Claim 10, wherein said polyacrylate ester of an alkylene polyol is present in said in-mold coating material in an amount of from about 20 to about 30 parts by weight for per 100 parts by weight of said polyester urethane acrylate.

18. (Currently Amended) [[A]] The process according to Claim 10, wherein said in-mold coating material composition comprises graphite, titanium dioxide, carbon black and talc.

19. (Currently Amended) [[A]] The process according to Claim 10, wherein said saturated (cyclo) aliphatic (meth) acrylate is isobornyl acrylate.

20. (Currently Amended) [[A]] The process according to Claim 10, wherein said hydroxy alkyl (meth) acrylate is hydroxypropyl methacrylate.

21. (Currently Amended) [[A]] The process according to Claim 10, wherein said polyacrylate ester of an alkylene polyol is hexane diol acrylate.

22. (Currently Amended) [[A]] The process according to Claim 10, wherein said initiator is selected from the group consisting of tertiary butyl perbenzoate, tertiary butyl peroctoate and mixtures thereof.

23. (Currently Amended) [[A]] The process according to Claim 22, wherein said initiator is tertiary butyl perbenzoate.

24. (Currently Amended) [[A]] The process according to Claim 10, wherein said initiator comprises a peroxide compound.

25. (Currently Amended) [[A]] The process according to Claim 10, wherein said initiator comprises an azo-initiator.

26. (Currently Amended) [[A]] The process according to Claim 24, wherein said peroxide compound is selected from the group consisting of diacetyl peroxide in dimethyl phthalate, dibenzoyl peroxide, di (p-chlorobenzoyl) peroxide in dibutyl phthalate, di (2,4-dichlorobenzoyl) peroxide in dibutyl phthalate dilauroyl peroxide, methyl ethyl ketone peroxide, cyclohexanone peroxide in dibutyl phthalate, 3,5-dihydroxy-3,4-dimethyl-1,2-dioxacyclopentane, t-butylperoxy (2-ethyl hexanoate), caprylyl peroxide, 2,5-dimethyl-2,5-di (benzoyl peroxy) hexane, 1-hydroxy cyclohexyl hydroperoxide-1, t-butyl peroxy (2-ethyl butyrate), 2,5-dimethyl-2,5-bis (t-butyl peroxy) hexane, cumylhydroperoxide, diacetyl peroxide, t-butyl hydroperoxide, ditertiary butyl peroxide, 3,5-dihydroxy-3,5-dimethyl-1,2-oxacyclopentane, 1,1-bis (t-butylperoxy)-3,3,5-trimethyl cyclohexane, and mixtures thereof.

27. (Currently Amended) [[A]] The process according to Claim 3, wherein said coated thermoplastic workpiece is suitable for use as is in an end use application.

28. (Currently Amended) [[A]] The process according to Claim 10, wherein said initiator is present in an amount of from about .25% to about 5% by weight based upon the total weight of the components comprising said in-mold coating material.

29. (Currently Amended) [[A]] The process according to Claim 10, wherein said initiator is present in an amount of from about 1% to about 2% by weight based upon the total weight of the components comprising said in-mold coating material.

30. (Currently Amended) [[A]] The process according to Claim 3, wherein said thermoplastic substrate is a polycarbonate alloy.

31. (Currently Amended) [[A]] The process according to Claim 3, wherein said thermoplastic substrate is a polyester.

32. (Canceled).

33. (Canceled).

34. (Canceled).

35. (Canceled).

36. (New) A process of forming an in-mold coated article comprising the steps of:

(a) injecting a first composition into a mold cavity having a substantially fixed volume;

(b) cooling said first composition in said mold cavity to form a molded article; and

(c) injecting a second composition into said mold cavity having said substantially fixed volume to coat said molded article in said mold cavity.

37. (New) The process of claim 35 wherein the step of injecting said first composition includes the sub-steps of:

injecting said first composition into said mold cavity under a first pressure until said cavity is about 75 percent filled; and

continue injecting said first composition into said mold cavity under a second pressure which is less than said first pressure until said cavity is at least about 99 percent filled.

38. (New) The process of claim 37 wherein the step of cooling the first composition includes the sub-step of:

maintaining said first composition under a third pressure which is less than said second pressure at least until said first composition has cooled sufficiently to form said molded article.

39. (New) The process of claim 36 wherein the step of coating the first composition includes the sub-step of:

maintaining said first composition under a hold pressure.

40. (New) The process of claim 36 wherein the step of injecting said second composition occurs immediately after said first composition falls below a melt temperature corresponding to said first composition.

41. (New) A method of forming an in-mold coated article comprising the steps of:

(a) injecting a first composition into a mold cavity defined between at least two mold members which are maintained a substantially fixed distance relative to one another;

(b) cooling said first composition in said mold cavity while maintaining said at least two mold members said substantially fixed distance relative to one another to form a molded article; and

(c) injecting a second composition into said mold cavity and onto a surface of said molded article to coat said surface while maintaining said at least two mold members said substantially fixed distance relative to one another.

42. (New) The method of claim 41 wherein said mold cavity has a substantially fixed volume during steps (a), (b) and (c) that remains substantially unchanged in steps (a), (b) and (c).

REMARKS

Applicant respectfully requests that the foregoing amendments be entered prior to substantive examination of the application.

Claims 1 and 8-31 have been amended and new claims 36-42 have been added. The amendments and the new claims find support throughout the specification and in Figures 1-3.

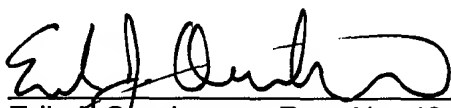
CONCLUSION

It is respectfully submitted that the application is in condition for allowance. An early indication thereof is respectfully requested.

Respectfully submitted,

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